

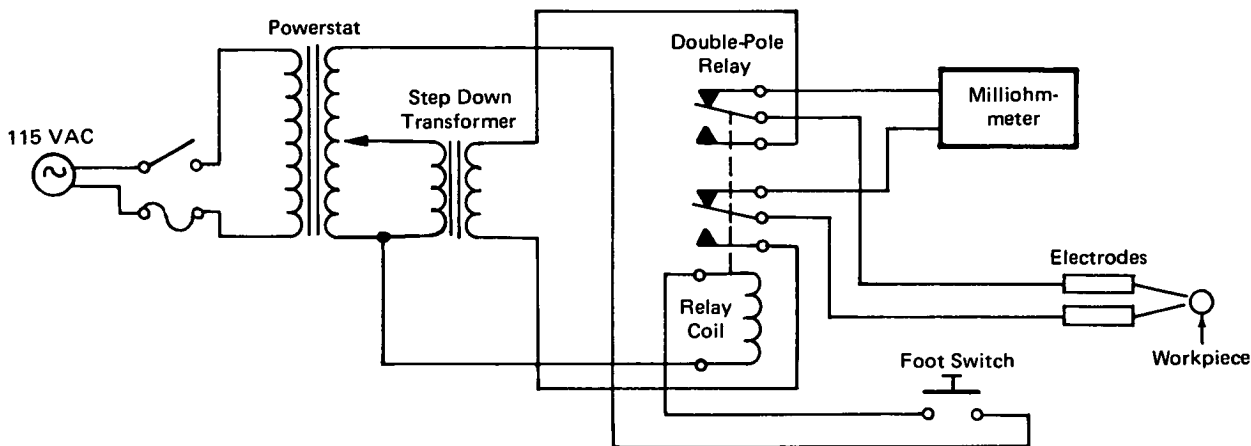
# NASA TECH BRIEF

## *John F. Kennedy Space Center*



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### Positive Contact Resistance Soldering Unit



Resistance Soldering Unit

#### The problem:

Resistance soldering is commonly used to interconnect electronic components on circuit boards and on other electronic equipment. The soldering apparatus uses two electrodes a short distance apart. When the electrodes are placed in contact with any metal workpiece on a circuit board, they conduct current which generates the heat for soldering. One important point that must be remembered during this process is to make a positive contact between the workpiece and the electrodes. If the contact is poor, arcing may occur between the electrodes so that a good solder joint cannot be made and sensitive electronic devices may be damaged.

#### The solution:

A resistance soldering unit which uses an ohmmeter to indicate a positive contact between the electrodes and workpiece will permit good soldering and help prevent damage to electronic devices.

#### How it's done:

The resistance soldering unit (see figure) operates from a standard 115 Vac source. Power is fed through a powerstat with its secondary connected to a primary adjustable contact of a stepdown transformer. The secondary of the powerstat is also connected to a relay coil which is in series with a foot operated switch. This switch energizes the relay coil which switches the double-pole double-throw contacts. The relay in a de-energized state connects the milliohm-meter with the soldering electrodes. Before soldering, the operator places the electrodes in contact with the workpiece to a point at which the milliohm-meter records a minimum possible resistance. This minimum resistance will indicate that the best possible contact has been made. Without loosening the hold, he then depresses the foot switch which energizes the relay. The relay then disconnects the meter and turns on the power for soldering.

(continued overleaf)

**Note:**

Requests for further information may be directed to:  
Technology Utilization Officer  
Kennedy Space Center  
Code AD-PAT  
Kennedy Space Center, Florida 32899  
Reference: TSP73-10145

**Patent status:**

This invention has been patented by NASA (U.S. Patent No. 3,621,193). Inquiries concerning non-exclusive or exclusive license for its commercial development should be addressed to:

Patent Counsel  
Kennedy Space Center  
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